REMARKS

The Applicants thank the Examiner for the thorough consideration given the present application. Claims 1, 6-8, 13-15, 18-20, 23, and 24 are currently being prosecuted. Claims 4, 11, 17, and 22 have been canceled, and claims 1, 8, 15, and 20 have been amended. Claims 1, 8, 15, and 20 are independent. The Examiner is respectfully requested to reconsider his rejections in view of the amendments and remarks as set forth herein.

Reasons for Entry of Amendments

At the outset, it is respectfully requested that this Amendment be entered into the official file in view of the fact that the amendments to the claims place the application in condition for allowance.

In the alternative, if the Examiner does not agree that this application is in condition for allowance, it is respectfully requested that this Amendment be entered for the purpose of appeal. This Amendment reduces the issues on appeal by placing the claims in compliance with 35 U.S.C. §112, second paragraph, and by canceling claims 4, 11, 17, and 22. This Amendment was not presented at an earlier date in view of the fact that Applicants did not fully appreciate the Examiner's position until the Final Office Action was reviewed.

Rejection Under 35 U.S.C. §112, second paragraph

Claims 1, 4, 6-8, 11, 13-15, 17-20, and 22-24 stand rejected under 35 U.S.C. §112, second paragraph, as being indefinite. This rejection is respectfully traversed.

In order to overcome this rejection, Applicants have canceled claims 4, 11, 17, and 22 and have amended claims 1, 8, 15, and 20, to correct each of the deficiencies specifically pointed out by the Examiner. The Applicants respectfully submit that the claims, as amended, particularly point out and distinctly claim the subject matter which the Applicants regard as the invention. Accordingly, reconsideration and withdrawal of this rejection are respectfully requested.

In view of the above amendments, the rejection under 35 U.S.C. §112, second paragraphs, have been overcome.

Rejection Under 35 U.S.C. §103(a)

Claims 1, 4, 6-8, 11, 13-15, 17-20, and 22-24 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Whittenberger et al (U.S. 5.651,906) in view of Kohno et al. (U.S. 5,653,825), Arai et al. (U.S. 5,151,254), and Gulati (U.S. 5,376,341). This rejection is respectfully traversed.

In response, the Applicants have amended claims 1, 8, 15, and 20 herein, to include a combination of elements including a honeycomb structure having a plurality of air vents, the air vents being substantially equal in size to each other and disposed in concentric rings around an axis of said honeycomb structure; and a cylindrical case covering an outer peripheral surface of the honeycomb structure. Further, a catalyst layer is formed on exposed surfaces of said honeycomb structure and on an interior surface of said cylindrical case, and since the material of the case is the same as that of the honeycomb structure, a coefficient of

linear expansion of the case is substantially the same as a coefficient of linear expansion of the honeycomb structure, thereby suppressing thermal deformation of the case.

A review of Whittenberger shows that Whittenberger merely discloses air vents formed by corrugated or involute core elements and which vary in size.

The Kohno et al. patent merely discloses stainless steel sheets having an Mo content of not more than 2.0%, and fails to teach anything about the size or arrangement of air vents. Moreover, in neither of these patents is there any teaching or suggestion of using the same material for both a honeycomb structure and a case, in order that a coefficient of linear expansion of the case is made to be substantially the same as a coefficient of linear expansion of the honeycomb structure, thereby suppressing thermal deformation of the case.

Column 7, lines 2-6, of the Kohno et al. patent states that "Mo is effective for further improving the corrosion resistance of a given stainless steel. Content of Mo above 2.0% by weight invite reduced hot rolling workability. Thus Mo should be in a content of not more than 2.0% by weight in the steel."

Given the fact that Kohno et al. specifically teach against having an Mo content above 2.0%, the Applicants find it difficult to understand how the Examiner would conclude it would be obvious to a person in the art would take the teachings of Kohno et al. to make an invention calling for Mo in the range of $0.30wt\% \leq Mo \leq 2.50wt\%$. The Applicants also respectfully point out to the Examiner that corrosion resistance (the object of Kohno et al.) is different from high temperature resistance (the object of the present inventors). It should be

noted that resistance against corrosion is resistance against rust, rust being a chemical reaction with water, with the swapping of ions. By contrast, resistance against high temperature oxidation is resistance against a reaction with gas (usually oxygen). Kohno et al. teach that Mo has a definite effect in resisting corrosion in stainless steel, but does not teach what the effect may be in resisting the effects of high temperature oxidation as in the present invention. Thus, while Mo of less than 2.0% as taught by Kohno et al. affords resistance against corrosion, it is not proper to conclude that Mo of less than 2.0% would also achieve the resistance against high temperature oxidation, an object of the present invention (page 2, lines 16-18, of the specification provides supporting disclosure).

Regarding the Arai (U.S. 5,151,254) and Gulati (U.S.5,376341) patents, in neither of these is there any teaching of Mo in the range of $0.30\% \leqq \text{Mo} \leqq 2.5\%$, as claimed in independent claim 1 and 8 of the present invention.

Further, there is no teaching or suggestion in any of the prior art references of a honeycomb structure with a plurality of air vents, the air vents being substantially equal in size to each other and disposed in concentric rings around an axis of said honeycomb structure, as claimed in independent claims 1, 8, 15, and 20 of the present invention. Likewise, there is no teaching or suggestion in any of the prior art references of using the same material for both the case and the honeycomb structure, in order that a coefficient of linear expansion of the case is made to be substantially the same as a coefficient of linear

expansion of the honeycomb structure, thereby suppressing thermal deformation of the case, as claimed in independent claims 1, 8, 15, and 20 of the present invention.

Thus, the Applicants respectfully submit that the prior art references cited by the Examiner, either alone or in combination, fail to teach or suggest the novel combination of elements of the present invention. Accordingly, the Examiner's rejection under 35 U.S.C. §103(a) has been overcome.

Independent claims 1, 8, 15, and 20, as well as the claims depending therefrom, are now in condition for allowance.

CONCLUSION

In view of the above amendments and remarks, reconsideration of the rejections and allowance of all of the claims are respectfully requested.

All of the stated grounds of rejection have been properly traversed, accommodated, or rendered moot. It is believed that a full and complete response has been made to the outstanding Office Action, and that the present application is in condition for allowance.

If the Examiner believes, for any reason, that personal communication will expedite prosecution of this application, the Examiner is invited to telephone the undersigned at (703) 205-8000.

If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies to charge payment or credit any overpayment to Deposit Account No. 02-2448 for any additional fees required under 37 C.F.R. §§1.16 or 1.17, particularly extension of time fees.

Respectfully submitted,

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MARKED-UP VERSION OF AMENDED CLAIMS

IN THE CLAIMS:

Please **cancel claims 4, 11, 17, and 22** without prejudice to or disclaimer of the subject matter contained therein.

Please **amend claims 1, 8, 15, and 20** as follows:

1. (Four Times Amended) A metal carrier for a catalyst comprising:

a honeycomb structure made of ferritic stainless steel and shaped in a cylindrical form, said honeycomb structure having a plurality of air vents [extending in an axial direction thereof], the air vents being substantially equal in size to each other and disposed in concentric rings around an axis of said honeycomb structure;

a cylindrical case covering an outer peripheral surface of the honeycomb structure, wherein the cylindrical case is composed of ferritic stainless steel containing Mo, said Mo content in the ferritic stainless steel is in the range of 0.30 wt% $\leqq$ Mo $\leqq$ 2.50 wt%;

[a muffler housing, said cylindrical case being disposed within said muffler housing and being displaced a predetermined distance relative to an interior wall of the muffler housing to form a space therebetween;

an exhaust pipe extending within said muffler housing and being displaced relative to the interior wall of the muffler housing to form a space therebetween, said cylindrical case being mounted on said exhaust pipe at a distal end thereof;] and

a catalyst layer being formed on exposed surfaces of said honeycomb structure and on an interior surface of said cylindrical case, and since the material of the case is the same as that of the honeycomb structure, a [difference in the] coefficient of linear expansion [between] of the case [and] is substantially the same as a coefficient of linear expansion of the honeycomb structure [is small], thereby suppressing thermal deformation of the case.

8. (Four Times Amended) A metal carrier for a catalyst comprising:

a honeycomb structure made of ferritic stainless steel and having a catalyst layer formed thereon, said honeycomb structure having a plurality of air vents [extending in an axial direction thereof], the air vents being substantially equal in size to each other and disposed in concentric rings around an axis of said honeycomb structure;

a case covering an outer surface of the honeycomb structure, wherein the case is composed of ferritic stainless steel containing Mo, said Mo content in the ferritic stainless steel is in the range of 0.30 wt% $\leqq$ Mo $\leqq$ 2.50 wt%;

[a muffler housing, said case being disposed within said muffler housing and being displaced a predetermined distance relative to an interior wall of the muffler housing to form a space therebetween; and

an exhaust pipe extending within said muffler housing and being displaced relative to the interior wall of the muffler housing to form a space therebetween, said case being mounted on said exhaust pipe at a distal end thereof],

wherein said catalyst layer being formed on exposed surfaces of said honeycomb structure and on an interior surface of said cylindrical case, and since the material of the case is the same as that of the honeycomb structure, a [difference in the] coefficient of linear expansion [between] of the case [and] is substantially the same as a coefficient of linear expansion of the honeycomb structure [is small], thereby suppressing thermal deformation of the case.

15. (Three Times Amended) A metal carrier for a catalyst comprising:

a honeycomb structure made of ferritic stainless steel, said honeycomb structure having a plurality of air vents [extending in an axial direction thereof], the air vents being substantially equal in size to each other and disposed in concentric rings around an axis of said honeycomb structure;

a case covering an outer peripheral surface of the honeycomb structure, wherein the case is composed of ferritic stainless steel containing Mo, said Mo content in the ferritic stainless steel is 1.2 wt%;

[a muffler housing, said case being disposed within said muffler housing and being displaced a predetermined distance relative to an interior wall of the muffler housing to form a space therebetween;

an exhaust pipe extending within said muffler housing and being displaced relative to the interior wall of the muffler housing to form a space therebetween, said case being mounted on said exhaust pipe at a distal end thereof]; and

a catalyst layer being formed on exposed surfaces of said honeycomb structure and on an interior surface of said cylindrical case, and since the material of the case is the same as that of the honeycomb structure, a [difference in the] coefficient of linear expansion [between] of the case [and] is substantially the same as a coefficient of linear expansion of the honeycomb structure [is small], thereby suppressing thermal deformation of the case.

20. (Thrice Amended) A metal carrier for a catalyst comprising:

a honeycomb structure made of ferritic stainless steel and having a catalyst layer formed thereon, said honeycomb structure having a plurality of air vents [extending in an axial direction thereof], the air vents being substantially equal in size to each other and disposed in concentric rings around an axis of said honeycomb structure;

a case covering an outer surface of the honeycomb structure, wherein the case is composed of ferritic stainless steel containing Mo, said Mo content in the ferritic stainless steel is 1.20wt%;

[a muffler housing, said case being disposed within said muffler housing and being displaced a predetermined distance relative to an interior wall of the muffler housing to form a space therebetween; and

an exhaust pipe extending within said muffler housing and being displaced relative to the interior wall of the muffler housing to form a space therebetween, said case being mounted on said exhaust pipe at a distal end thereof],

wherein said catalyst layer being formed on exposed surfaces of said honeycomb structure and on an interior surface of said cylindrical case, and since the material of the case is the same as that of the honeycomb structure, a [difference in the] coefficient of linear expansion [between] of the case [and] is substantially the same as a coefficient of linear expansion of the honeycomb structure [is small], thereby suppressing thermal deformation of the case.